

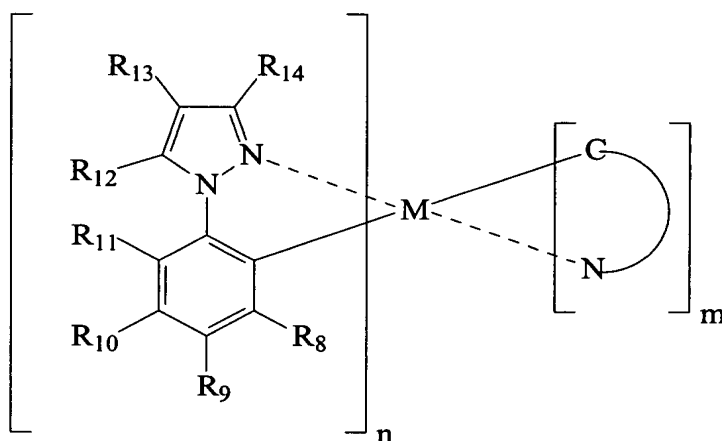
## AMENDMENTS TO THE SPECIFICATION:

Please amend the specification as follows:

In the Summary of the Invention, at pages 4 and 5, amend as follows:

An organic light emitting device is provided. The device has an anode, a cathode, and an emissive layer disposed between and electrically connected to the anode and the cathode.

The emissive layer may further include a compound with the following structure:



wherein

M is a metal having an atomic weight greater than 40;

(C-N) is a substituted or unsubstituted cyclometallated ligand, and (C-N) is different from at least one other ligand attached to the metal;

each of R<sub>8</sub> through R<sub>14</sub> is independently selected from hydrogen, alkyl, alkenyl, alkynyl, alkylaryl, CN, CF<sub>3</sub>, CO<sub>2</sub>R, C(O)R, NR<sub>2</sub>, NO<sub>2</sub>, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl, or a heterocyclic group, wherein each R is independently selected from the group consisting of H, alkyl, alkaryl, and aryl;

additionally or alternatively, any two adjacent substituted positions together form, independently, a fused 4- to 7-member cyclic group, wherein said cyclic group is cycloalkyl, cycloheteroalkyl, aryl, or heteroaryl, and wherein the 4- to 7-member cyclic group may be optionally substituted with substituent R;

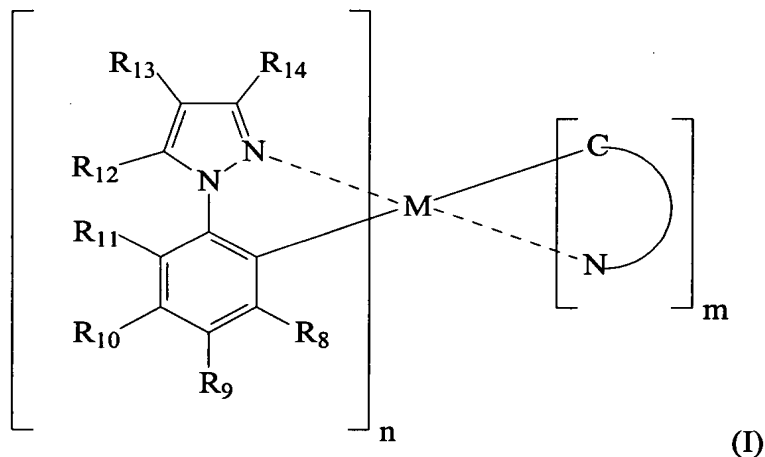
m may have a value of at least 1;

n has a value of at least 1; and where n is 3, R is not a cyano group;

m + n is the maximum number of ligands that may be attached to the metal.

In paragraph [0043], at pages 15 and 16, amend as follows:

**[0043]** In an embodiment of the present invention, a phosphorescent compound having improved efficiency when incorporated into an OLED is provided. The emissive compound has the following structure (Formula I):



wherein

M is a metal having an atomic weight greater than 40;

(C-N) is a substituted or unsubstituted cyclometallated ligand, and (C-N) is different from at least one other ligand attached to the metal;

each of R<sub>8</sub> through R<sub>14</sub> is independently selected from hydrogen, alkyl, alkenyl, alkynyl, alkylaryl, CN, CF<sub>3</sub>, CO<sub>2</sub>R, C(O)R, NR<sub>2</sub>, NO<sub>2</sub>, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl, or a heterocyclic group, wherein each R is independently selected from the group consisting of H, alkyl, alkaryl, and aryl;

additionally or alternatively, any two adjacent substituted positions together form, independently, a fused 4- to 7-member cyclic group, wherein said cyclic group is cycloalkyl, cycloheteroalkyl, aryl, or heteroaryl, and wherein the 4- to 7-member cyclic group may be optionally substituted with substituent R;

m has a value of at least 1;

n has a value of at least 1; and

m + n is the maximum number of ligands that may be attached to the metal.

Amend paragraphs [0046] to [0050], at pages 16 and 17, as follows:

**[0046]** The term “alkyl” as used herein contemplates both straight and branched chain alkyl radicals. Preferred alkyl groups are those containing from one to fifteen carbon atoms and includes methyl, ethyl, propyl, isopropyl, butyl, isobutyl, *tert*-butyl, and the like. Additionally, the alkyl group may be optionally substituted with one or more substituents

selected from halo, CN, CO<sub>2</sub>R, C(O)R, NR<sub>2</sub>, cyclic-amino, NO<sub>2</sub>, and OR, wherein each R is independently selected from the group consisting of H, alkyl, alkaryl, and aryl.

[0047] The term “cycloalkyl” as used herein contemplates cyclic alkyl radicals. Preferred cycloalkyl groups are those containing 3 to 7 carbon atoms and includes cyclopropyl, cyclopentyl, cyclohexyl, and the like. Additionally, the cycloalkyl group may be optionally substituted with one or more substituents selected from halo, CN, CO<sub>2</sub>R, C(O)R, NR<sub>2</sub>, cyclic-amino, NO<sub>2</sub>, and OR, wherein each R is independently selected from the group consisting of H, alkyl, alkaryl, and aryl.

[0048] The term “alkenyl” as used herein contemplates both straight and branched chain alkene radicals. Preferred alkenyl groups are those containing two to fifteen carbon atoms. Additionally, the alkenyl group may be optionally substituted with one or more substituents selected from halo, CN, CO<sub>2</sub>R, C(O)R, NR<sub>2</sub>, cyclic-amino, NO<sub>2</sub>, and OR, wherein each R is independently selected from the group consisting of H, alkyl, alkaryl, and aryl.

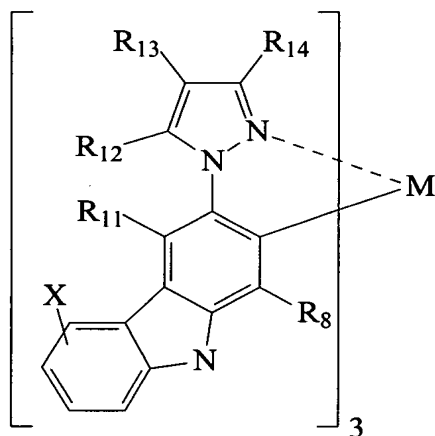
[0049] The term “alkynyl” as used herein contemplates both straight and branched chain alkyne radicals. Preferred alkyl groups are those containing two to fifteen carbon atoms. Additionally, the alkynyl group may be optionally substituted with one or more substituents selected from halo, CN, CO<sub>2</sub>R, C(O)R, NR<sub>2</sub>, cyclic-amino, NO<sub>2</sub>, and OR, wherein each R is independently selected from the group consisting of H, alkyl, alkaryl, and aryl.

[0050] The terms “alkylaryl” as used herein contemplates an alkyl group that has as a substituent an aromatic group. Additionally, the alkylaryl group may be optionally substituted on the aryl with one or more substituents selected from halo, CN, CO<sub>2</sub>R, C(O)R, NR<sub>2</sub>, cyclic-amino, NO<sub>2</sub>, and OR, wherein each R is independently selected from the group consisting of H, alkyl, alkaryl, and aryl.

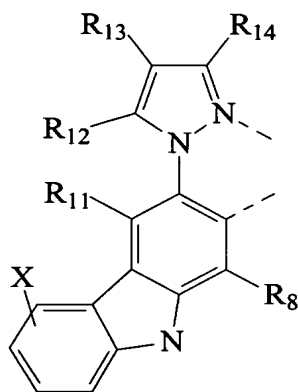
Amend paragraph [0061], at pages 22 and 23, as follows:

[0061] In another embodiment, the compound of Formula I comprises a structure such that n is the maximum number of ligands that may be attached to the metal M, and m is zero. In this embodiment, M and each of substituents R<sub>8</sub> through R<sub>14</sub>, are is defined according to the definition of Formula I, with the notable exception that none of R<sub>8</sub> through R<sub>14</sub> is ~~not~~ a cyano group. An embodiment of this invention includes a compound with the

structure



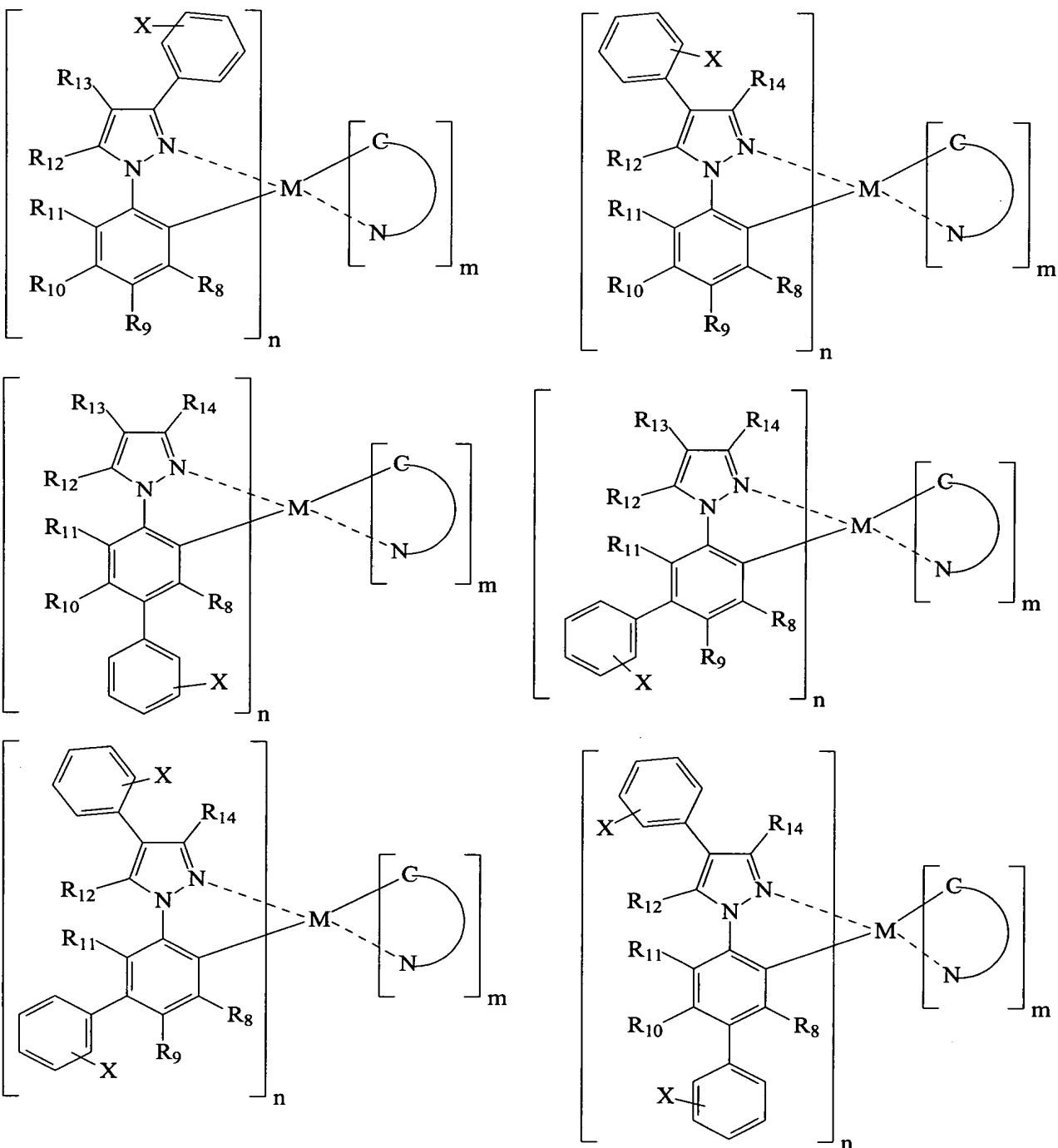
wherein X is independently selected from hydrogen, alkyl, alkenyl, alkynyl, alkylaryl, CN, CF<sub>3</sub>, CO<sub>2</sub>R, C(O)R, NR<sub>2</sub>, NO<sub>2</sub>, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl, or a heterocyclic group, wherein each R is independently selected from the group consisting of H, alkyl, alkaryl, and aryl. Preferably, M is iridium and each of R<sub>8</sub> through R<sub>14</sub> is hydrogen. An embodiment of this invention includes a ligand with the following structure:



Preferably, each of R<sub>8</sub> through R<sub>14</sub> is hydrogen.

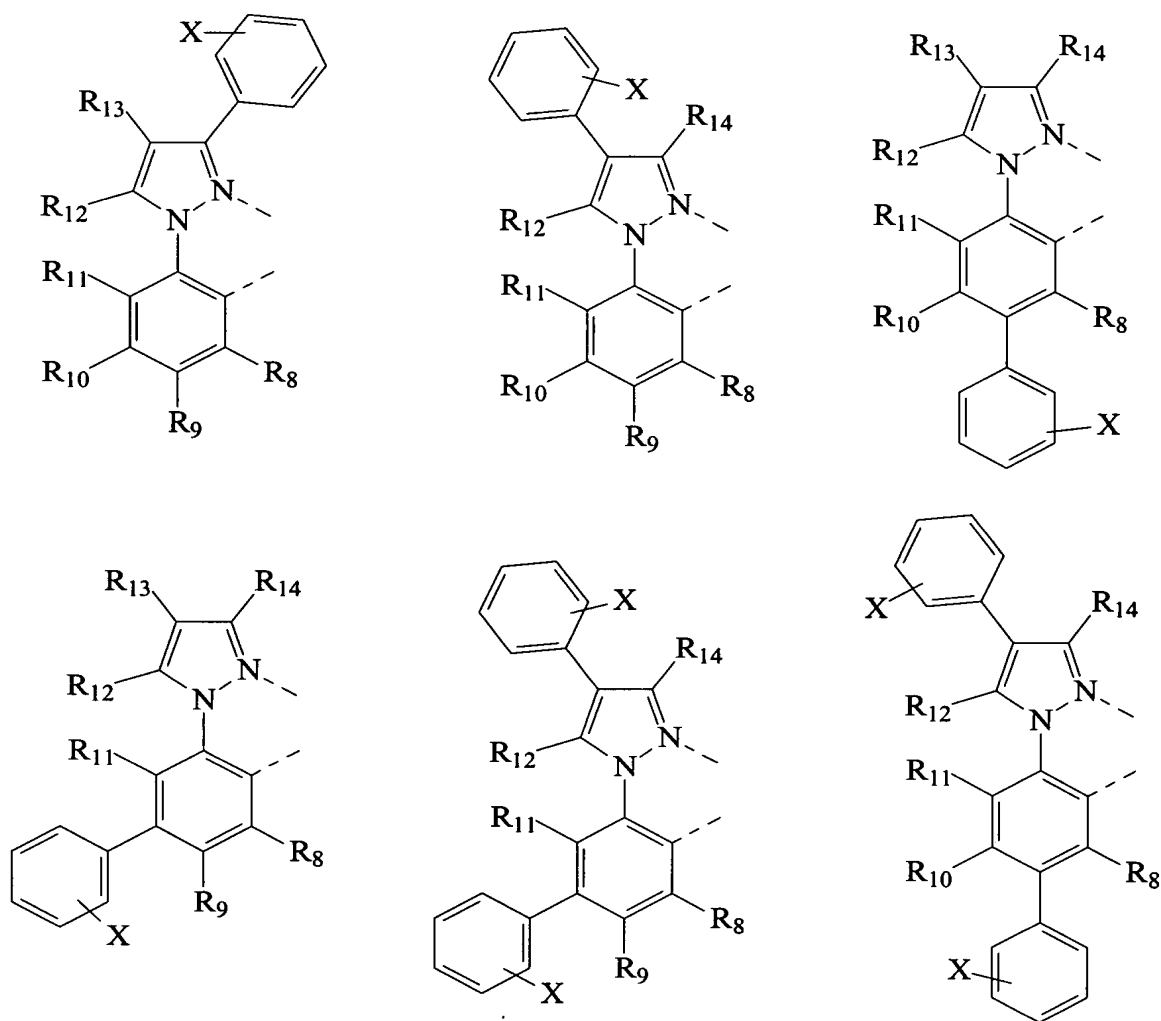
Amend paragraphs [0063] and [0064], at pages 23 to 29, as follows:

**[0063]** In a preferred embodiment, one or more of the substituents R<sub>8</sub> through R<sub>14</sub>, as defined in Formula I, is phenyl, naphthyl, or pyridyl, which may be substituted or unsubstituted. Preferably at least one substituent R<sub>8</sub> through R<sub>14</sub> is phenyl. Preferred embodiments include compounds having the following structures:



wherein the metal M, each of substituents R<sub>8</sub> through R<sub>14</sub>, m, n, and (C-N) are is defined according to the definition of Formula I. X is independently selected from hydrogen, alkyl, alkenyl, alkynyl, alkylaryl, CN, CF<sub>3</sub>, CO<sub>2</sub>R, C(O)R, NR<sub>2</sub>, NO<sub>2</sub>, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl, or a heterocyclic group, wherein each R is independently selected from the group consisting of H, alkyl, alkaryl, and aryl. Additionally or alternatively, any two adjacent substituted positions together form, independently, a fused 4- to 7-member cyclic group, which may be cycloalkyl,

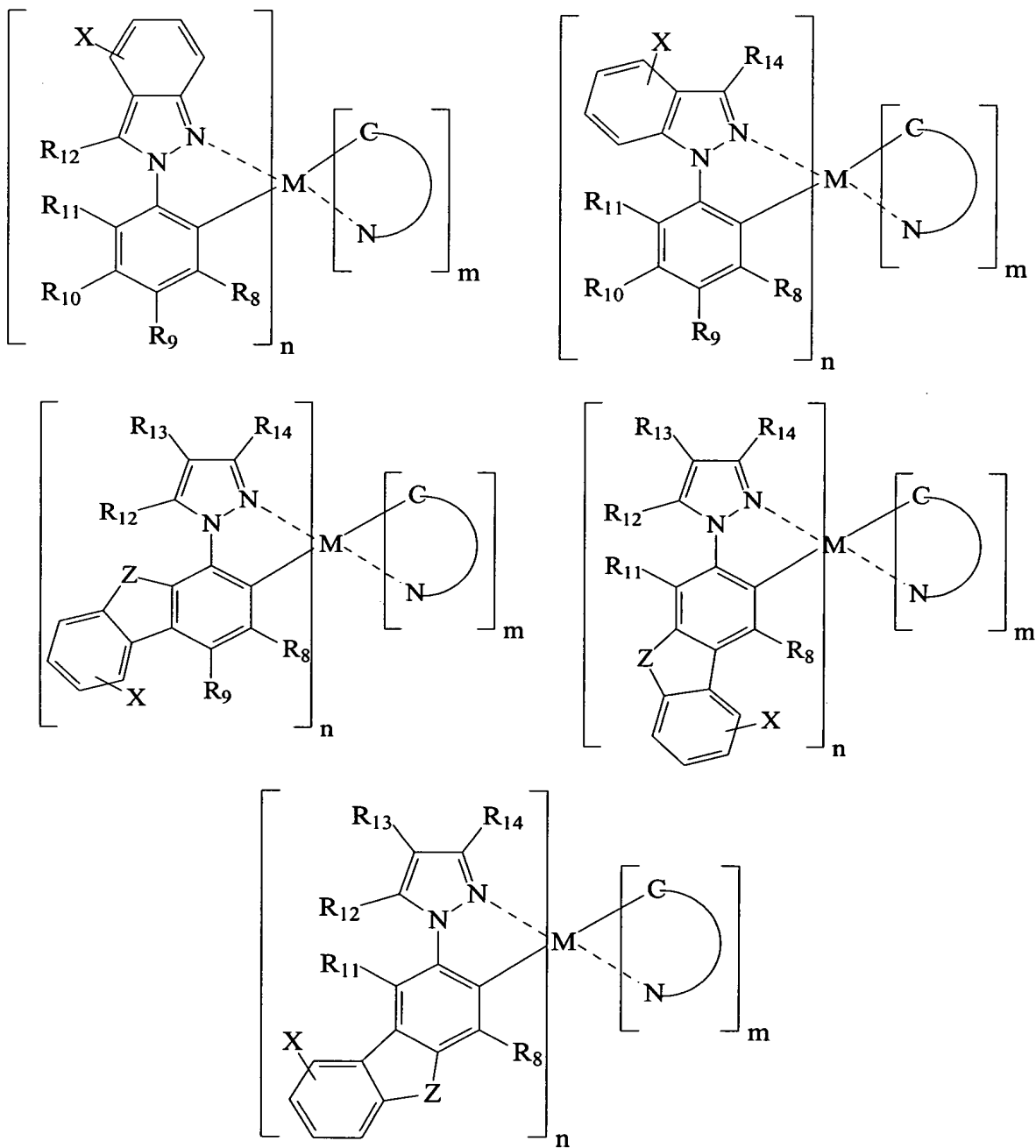
cycloheteroalkyl, aryl, or heteroaryl, and the 4- to 7-member cyclic group may be further substituted by substituent X. Preferred embodiments of this invention include ligands with the following structure:

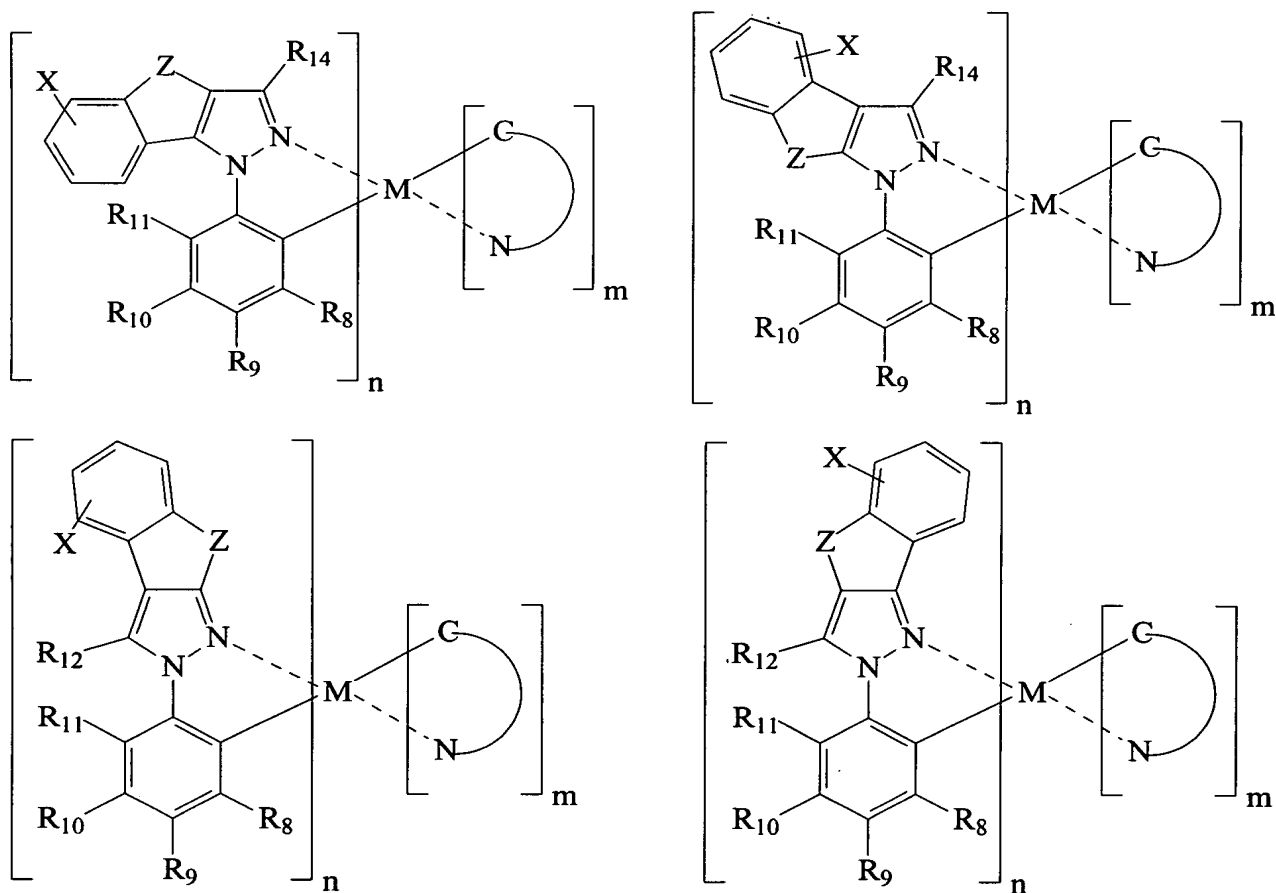


wherein each substituent R<sub>8</sub> through R<sub>14</sub> is defined according to the definition of Formula I. X is independently selected from hydrogen, alkyl, alkenyl, alkynyl, alkylaryl, CN, CF<sub>3</sub>, CO<sub>2</sub>R, C(O)R, NR<sub>2</sub>, NO<sub>2</sub>, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl, or a heterocyclic group, wherein each R is independently selected from the group consisting of H, alkyl, alkaryl, and aryl. Additionally or alternatively, any two adjacent substituted positions together form, independently, a fused 4- to 7-member cyclic group, which may be cycloalkyl, cycloheteroalkyl, aryl, or heteroaryl, and the 4- to 7-member cyclic group may be further substituted by substituent X.

**[0064]** In another embodiment, at least two substituents R<sub>8</sub> through R<sub>14</sub>, as defined in Formula I, are fused to form a 4- to 7-member cyclic group, which may be optionally

substituted. In preferred embodiments, the substituents form a 5- or 6-member cyclic groups. Preferred embodiments include compounds having the following structures:

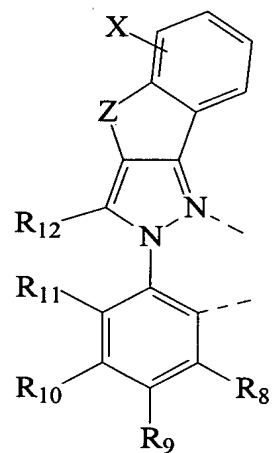
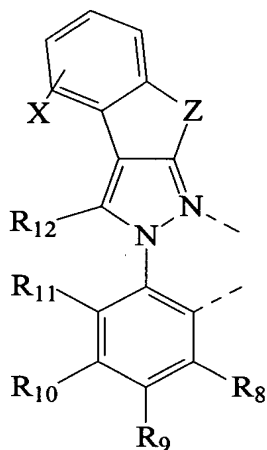
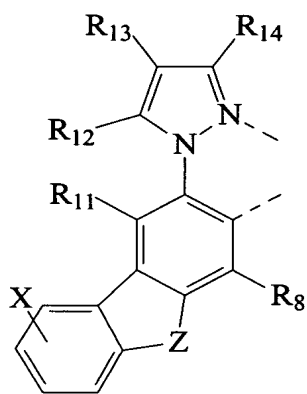
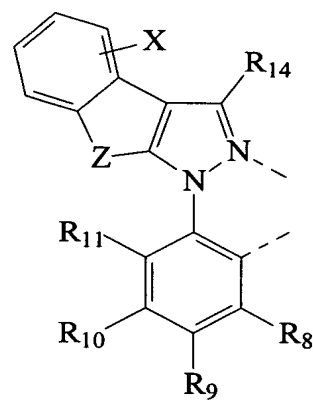
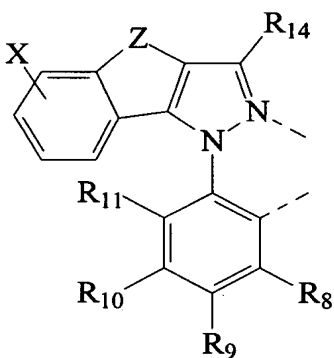
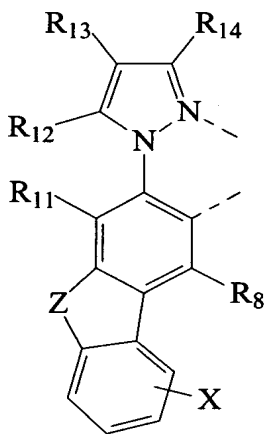
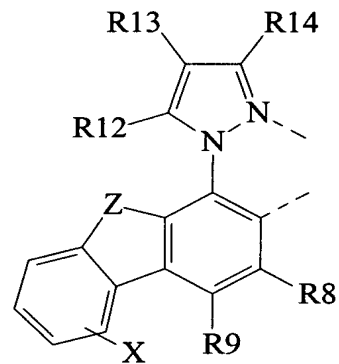
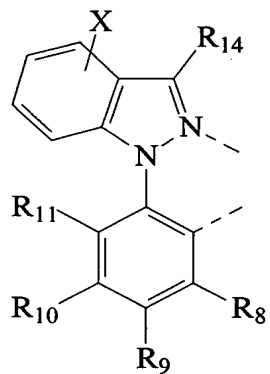
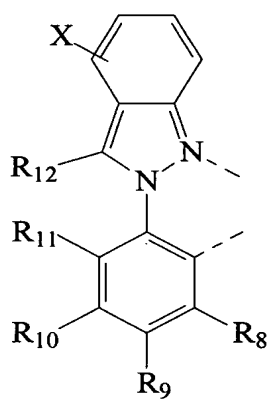




wherein the metal M, each of substituents  $R_8$  through  $R_{14}$ , m, n, and (C-N) are defined according to the definition of Formula I. X is independently selected from hydrogen, alkyl, alkenyl, alkynyl, alkylaryl, CN,  $CF_3$ ,  $CO_2R$ ,  $C(O)R$ ,  $NR_2$ ,  $NO_2$ , OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl, or a heterocyclic group, wherein each R is independently selected from the group consisting of H, alkyl, alkaryl, and aryl.

Additionally or alternatively, any two adjacent substituted positions together form, independently, a fused 4- to 7-member cyclic group, which may be cycloalkyl, cycloheteroalkyl, aryl, or heteroaryl, and the 4- to 7-member cyclic group may be further substituted by substituent X. Z is selected from  $-CH_2$ ,  $-CRR$ ,  $-NH$ ,  $-NR$ ,  $-O$ ,  $-S$ ,  $-SiR$ . Preferred embodiments of this invention include ligands with the following structure:





wherein each substituent  $R_8$  through  $R_{14}$  is defined according to the definition of Formula I. X is independently selected from hydrogen, alkyl, alkenyl, alkynyl, alkylaryl, CN,  $CF_3$ ,  $CO_2R$ ,  $C(O)R$ ,  $NR_2$ ,  $NO_2$ , OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl, or a heterocyclic group, wherein each R is independently selected from the group consisting of H, alkyl, alkaryl, and aryl. Additionally or alternatively, any two adjacent substituted positions together form, independently, a fused 4- to 7-member cyclic group, which may be

cycloalkyl, cycloheteroalkyl, aryl, or heteroaryl, and the 4- to 7-member cyclic group may be further substituted by substituent X. Z is selected from  $-\text{CH}_2$ ,  $-\text{CRR}$ ,  $-\text{NH}$ ,  $-\text{NR}$ ,  $-\text{O}$ ,  $-\text{S}$ ,  $-\text{SiR}$ .